



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/626,192

07/24/2003

Jos Manuel Accapadi

AUS920030231US1

1812

40412 7590 04/05/2007  
IBM CORPORATION- AUSTIN (JVL)  
C/O VAN LEEUWEN & VAN LEEUWEN  
PO BOX 90609  
AUSTIN, TX 78709-0609

EXAMINER

ZHE, MENG YAO

ART UNIT

PAPER NUMBER

2109

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

04/05/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/626,192	<b>Applicant(s)</b> ACCAPADI ET AL.	
	<b>Examiner</b> MengYao Zhe	<b>Art Unit</b> 2109	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 to 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 to 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/24/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This is the initial Office Action based on the 10/626192 application filed on July 24, 2003.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on July 24, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS as to the merits.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1 to 5, 7 to 12, 14 to 18, and 20** are rejected under 35 U.S.C. 102(b) as being anticipated by Silen, Patent No. 5,333,319.

As per **claim 1**, Silen teaches **a computer implemented method for adjusting a priority of an execution thread, said method comprising:**

**indicating that the execution thread needs a higher priority by updating a user mode accessible data area,** *(Column 5; Column 6, lines 35 to 55; Column 9, lines 55 to 65: Each work unit, which is the equivalent of a thread, has a RWE associated with it that contains a field called NPRTY, which indicates a special priority to be used when the work unit is about to be preempted. The user mode accessible data area is the equivalent of the NPRTY field.)*

**the indicating performed without increasing a priority corresponding to the execution thread;** *(Column 6, line 47: the priority is not changed until an interrupt happens)*

**detecting a preemption event;** *(Column 9, lines 55 to 69: the lock manager detects whenever a higher priority unit interrupts a lower priority unit. In Silen's disclosure, an interrupt happens when a higher priority unit requests for a lock that is currently held by a lower priority unit.)*

**reading the user mode accessible data area in response to the detected preemption event; and** *(Column 6, lines 35 to 55)*

**shifting the execution thread's priority based upon the user mode accessible data.** *(Column 6, lines 35 to 55)*

Art Unit: 2109

As per **claim 8**, it is a system that contains all the components capable of performing the method steps of claim 1. Since claim 1 is rejected, claim 8 is rejected as well.

As per **claim 14**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 1. Since claim 1 is rejected, claim 8 is rejected as well.

As per **claim 2**, Silen teaches

**updating a priority offset amount prior to the execution thread entering a critical section, whereupon the priority offset amount is included in the user mode accessible data; and whereupon the shifting of the execution thread's priority is based upon the priority offset amount. (Column 6, lines 35 to 55: the EPRTY contains the amount of priority offset)**

As per **claim 9**, it is a system that contains all the components capable of performing the method steps of claim 2. Since claim 2 is rejected, claim 9 is rejected as well.

As per **claim 15**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 2. Since claim 2 is rejected, claim 15 is rejected as well.

As per **claim 3**, Silen teaches

**setting a critical section flag within the user mode accessible data indicating that the execution thread is in the critical section; and** *(Column 6, lines 45 to 55: Since the current dispatching affinity can be re-enabled after it has been raised for the execution of a critical section, it is inherent in the teaching of Silen that a flag was set to indicate that execution is in the critical section such that the original priority may be restored after exiting the critical section.)*

**setting a priority applied flag within the user mode accessible data indicating that the execution thread's priority has not been shifted.** *(Column 5, lines 40 to 45: Although the EPRTY contains the escalated priority, unless it is set, it will not override the current priority. The flag that sets the EPRTY is equivalent of the priority applied flag.)*

As per **claim 10**, it is a system that contains all the components capable of performing the method steps of claim 3. Since claim 3 is rejected, claim 10 is rejected as well.

As per **claim 16**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 3. Since claim 3 is rejected, claim 16 is rejected as well.

As per **claim 4**, Silen teaches

**wherein the detecting, reading, and shifting further comprise: determining, at a kernel process, that the critical section flag has been set and that the priority applied flag indicates that the execution thread's priority has not been shifted; performing the shifting in response to the determination; and setting the priority applied flag indicating that the thread's priority has been shifted.** (*Column 6, lines 45 to 55; Column 5, lines 40 to 45: The lock manager can be considered as a kernel process*)

As per **claim 11**, it is a system that contains all the components capable of performing the method steps of claim 4. Since claim 4 is rejected, claim 11 is rejected as well.

As per **claim 17**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 4. Since claim 4 is rejected, claim 17 is rejected as well.

As per **claim 5**, Silen teaches

**setting the critical section flag within the user mode accessible data indicating that the execution thread is no longer in the critical section; receiving a second preemption event at the kernel process; determining, at**

**the kernel process, that the critical section flag is no longer set and that the priority applied flag indicates that the execution thread's priority has been shifted;** *(Column 6, lines 45 to 55; Column 5, lines 40 to 45; Column 10 lines 40 to 60: The newly changed priority would stay constant until it is preempted the second time and must undergo redispatching.)*

**re-shifting the execution thread's priority by the priority offset amount in response to the determination that the critical section flag is no longer set and that the priority flag indicates that the execution thread's priority has been shifted; and resetting the priority applied flag indicating that the execution thread's priority is no longer shifted.** *(Column 45, lines 35 to 55: The method step of resetting the flag is inherent in Silen's teaching.)*

As per **claim 12**, it is a system that contains all the components capable of performing the method steps of claim 5. Since claim 5 is rejected, claim 12 is rejected as well.

As per **claim 18**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 5. Since claim 5 is rejected, claim 18 is rejected as well.

As per **claim 7**, Silen teaches



**wherein the indicating is performed in response to the execution thread entering a critical code section that utilizes a shared system resource.**

*(Column 6, line 52; Column 9, lines 55 to 65: the lock is the equivalent of the shared system resource.)*

As per **claim 20**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 7. Since claim 7 is rejected, claim 20 is rejected as well.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 6, 13, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Silen, Patent No. 5,333,319 in view of Janssen et al., Pub No. US 2006/0037025 (hereafter Janssen).

As per **claim 6**, Silen teaches

**comparing the execution thread's shifted priority with a priority corresponding to a waiting thread; (Column 10, lines 1 to 5)**  
**and continuing execution of the execution thread if the execution thread's shifted priority is superior to the waiting thread's priority. (Column 6, lines 45 to 50)**

Silen does not teach

**preempting the execution thread if the waiting thread's priority is superior to the execution threads shifted priority;**

Art Unit: 2109

however, Janssen teaches

**preempting the execution thread if the waiting thread's priority is superior to the execution thread shifted priority** for the purpose of letting the threads with extremely high priority to run regardless of the fact that the lower priority threads had been raised. (*paragraph 35 and 36*)

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to have modified the invention of Silen with

**preempting the execution thread if the waiting thread's priority is superior to the execution threads shifted priority,**

as taught by Janssen, because it lets the threads with extremely high priority to run regardless of the fact that the lower priority threads had been raised.

As per **claim 13**, it is a system that contains all the components capable of performing the method steps of claim 6. Since claim 6 is rejected, claim 13 is rejected as well.

As per **claim 19**, it is a computer program product, which contains all the instructions capable of performing the method steps of claim 6. Since claim 6 is rejected, claim 19 is rejected as well.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-

Art Unit: 2109

6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.Z.

  
KIMBERLY D. NGUYEN  
PRIMARY EXAMINER